

REMARKS/ARGUMENTS

Claims 1, 2, 3, 5, 6 and 7 have been rejected under 35 U.S.C. § 103 as being unpatentable over Tajima in view of Johansen.

Applicant has reviewed the Tajima reference and has been unable to identify a corresponding English language patent, and thus, has necessarily relied on the Abstract provided by the Examiner. Even so, the Abstract does not appear to relate to a surface plasmon resonance, but rather an infrared spectrometer. Spectrometers measure the absorption of light into a material being tested, whereas surface plasmon resonance measures the interaction between the free electrons in a metallic surface and the material being tested.

Accordingly, as a first matter, the Applicant respectfully traverses the Examiner's suggestion that Tajima "discloses a surface resonance apparatus", and the suggestion that a person of ordinary skill in the art would combine the Tajima reference, showing an infrared spectrometer, with an SPR apparatus as taught by Johansen, because these devices operate in fundamentally different and incompatible ways.

Support for the Applicant's identification of the Tajima reference as an infrared spectrometer is provided by U.S. Patent 4,730,882 to Messerschmidt, a copy of which is attached, showing in Fig. 1 (copied below) the characteristic internal reflection crystal used in spectroscopy and apparent in the drawings of Tajima.

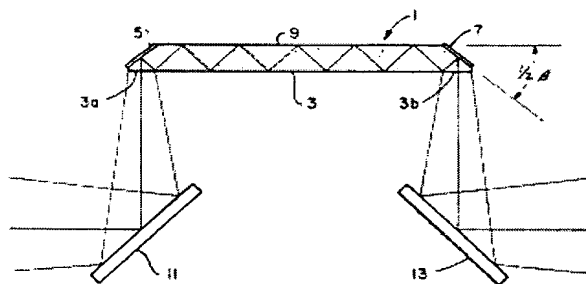


FIG. 1

The purpose of this crystal in infrared spectroscopy is to provide a transparent interface between the crystal and the sample. In contrast, the interface

between the light and the sample in SPR is a substantially opaque, thin metallic film as described in paragraph [0004] of the present invention. Further, the purpose of the crystal in infrared spectroscopy is to provide multiple light reflections, whereas in SPR, the reflected light must be identified to particular locations of probe molecules placed on the metallic film, usually by taking an image of the metallic film. Multiple reflections provided by the crystal in Tajima would appear to fragment this image preventing clear identification of the particular probe molecules interacting with the surface plasmons.

Thus, even if these references were properly combinable, a practitioner would have no guidance about how to combine them or assurance that a working device could be produced. It is questionable as to whether simply adding a metallic film to Tajima would provide a workable SPR device as proposed by the Examiner because of the multiple reflection problem that fragments the image. Alternatively, there is no indication in either of these references that the mirror system of Tajima would work with the prism of Johansen to provide a range of controlled reflection angles at a fixed area of a region of target molecules. Johansen teaches away from the use of the mirror system of Tajima by describing a system in which the light source and detector are moved as shown in Fig. 7.

Further, as is taught in Figs. 4 and 5 and paragraphs [0056] and [0057] of the present application, changes in the angle of the light significantly affect the path of light in the prism because of refraction by the prism material. Tajima neither recognizes this problem nor teaches a method of adjusting the position of the analyzing light beam on the prism face which allows for correction caused by refraction of the prism. In contrast, Tajima seems to show that the position of the light beam on the prism face is determined by the angle of the light beam and cannot be independently varied.

Thus, the Applicant respectfully suggests that the references would not be combined by those of ordinary skill in the art nor are there sufficient teachings of how to modify the references to produce a practical device meeting the limitation of the present claims.

For these reasons, it is believed that claims 1-15 are in condition for allowance and allowance is respectfully requested. Although no additional fees are believed due for filing this amendment, if an additional fee is deemed to be due, please charge any fee to Deposit Account No. 17-0055.

Respectfully submitted,

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